

## ABSTRACT

The shoes industry is one of the fastest growing industries in Indonesia. In the manufacturing process there are benzene chemicals which are used as solvents in shoes glue. Benzene in the glue causes various health risks when it enters the human body. This is because the nature of benzene is toxic and carcinogenic. This research aims to analyze the relationship of benzene exposure with s-phenylmercapturic acid levels in urine in shoes home industry workers in Osowilangun, Surabaya.

This research was an observational study with cross sectional design using quantitative. Data retrieval was implemented on 10 respondents. The research sample was taken through simple random sampling technique. Interview, weight measurement and examination of urine was done to get the information about the variable examined. The independent variables in this study were the concentration of benzene in the air and individual characteristics among other body weight, age, length of work, sex, smoking behavior, alcohol consumption, and physical exercise. The dependent variable is s-phenylmercapturic acid in urine. The s-phenylmercapturic acid variable and benzene content in the air were analyzed using spearman. The s-phenylmercapturic acid variable and body weight, age, length of work, sex smoking behavior, alcohol consumption, and physical exercise were used using multiple linear regression.

The results showed that there were a very weak relationship between s-phenylmercapturic acid variables and levels of benzene in the air ( $p = 0.879$ ). For the results of the study between the dependent variable (sex, age, length of work and body weight, smoking behavior, alcohol consumption, and physical exercise) with the independent variable (s-phenylmercapturic acid) in all has p value above 5%.

Continuous benzene exposure can affect in the health of home shoes industry workers by the results of measurements of benzene levels in the air that have exceeded the threshold value. So the need for risk control by using personal protective equipment such as gloves and masks when in direct contact with benzene exposure.

Keywords: shoes, benzene, s-phenylmercapturic acid, urine

**ABSTRAK**

*Industry* sepatu merupakan salah satu *industry* yang berkembang pesat di Indonesia. Dalam proses pembuatannya terdapat bahan kimia benzena yang digunakan sebagai pelarut di dalam lem sepatu. Adanya benzena yang ada di dalam lem menyebabkan berbagai macam risiko kesehatan bila masuk ke dalam tubuh manusia. Hal ini dikarenakan sifat dari benzena yaitu toksik dan karsinogenik. Penelitian ini bertujuan untuk menganalisis hubungan paparan benzena dengan kadar *s-phenylmercapturic acid* dalam urin pada pekerja *home industry* sepatu di Osowilangun Surabaya.

Penelitian ini merupakan penelitian observasional dengan rancangan cross sectional dengan pendekatan kuantitatif. Pengambilan data dilaksanakan pada 10 responden. Sampel penelitian diambil melalui teknik simple random sampling. Wawancara, pengukuran berat badan dan pemeriksaan urin dilakukan untuk mendapatkan informasi yang mendalam mengenai variabel-variabel yang diteliti. Variabel bebas dalam penelitian ini adalah konsentrasi benzena di udara dan karakteristik individu antara lain IMT, usia, lama kerja, jenis kelamin, perilaku merokok, konsumsi alkohol, dan olahraga. Variabel dependennya yaitu *s-phenylmercapturic acid* dalam urin. Variabel *s-phenylmercapturic acid* dan kadar benzena di udara dianalisis menggunakan korelasi spearman. Variabel *s-phenylmercapturic acid* dan karakteristik individu dianalisis menggunakan uji regresi linier berganda.

Hasil penelitian ini menunjukkan adanya hubungan yang sangat lemah antara variabel *s-phenylmercapturic acid* dengan kadar benzena di udara ( $p=0.879$ ). Untuk hasil penelitian antara variabel dependen (IMT, usia, lama kerja, jenis kelamin, perilaku merokok, konsumsi alkohol, dan olahraga) dengan variabel independen (*s-phenylmercapturic acid*) seluruhnya mempunyai p value diatas 5%.

Pajanan benzena yang terus-menerus dapat berpengaruh terhadap kesehatan pekerja *home industry* sepatu dengan adanya hasil pengukuran kadar benzena di udara yang sudah melebihi nilai ambang batas. Sehingga perlu adanya pengendalian risiko dengan menggunakan alat pelindung diri berupa sarung tangan dan masker ketika kontak langsung dengan paparan benzena.

Kata kunci : sepatu, benzena, *s-phenylmercapturic acid*, urin